



**The Third International Symposium on
“Application of Nano-Geosciences in Petroleum Engineering”
on 4-5 September, 2015, Kyoto**

Program

Friday, 4 September, 2015

9:30-10:20 Registration (1A)

Opening (1A)

10:20-10:30 Opening

Chairperson: Sumihiko Murata (Kyoto University)

Toshifumi Matsuoka (Kyoto University)

Application of Nano-Geosciences in oil and gas exploration and production: a brief overview

Shale Gas, Shale Oil, Tight Gas and Tight Oil (1B)

Chairperson: Sumihiko Murata

10:30-11:00 Weixiang Cui, Xiaohui Qiu, Jiang Yang, and Chunpeng Wang, CNPC, China

Research on Nano Fracturing Fluid Enhanced Oil Recovery and Displacement Efficiency in Tight Oil Reservoir (Invited)

11:00-11:20 Teruji Hirose, Kyosuke Onishi, Kazunori Abe, Hiroyuki Kosukegawa, and Hikari Fujii, Akita University, Japan

The Effect of Physical Properties of Siliceous Shales on the Amount of Adsorbed Gas

11:20-11:40 Yunosuke Sawa, Yunfeng Liang, Sumihiko Murata, and Toshifumi Matsuoka, Kyoto University; Takashi Akai and Sunao Takagi, JOGMEC, Japan



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Investigation of CH₄ Adsorption Behavior in Kerogen Nanopores under Supercritical Conditions: A
Molecular View Based on a Full-Atom Kerogen Models

**11:40-12:00 Naoki Okamoto, Yunfeng Liang, Sumihiko Murata, and Toshifumi Matsuoka,
Kyoto University; Takashi Akai and Sunao Takagi, JOGMEC, Japan**

Molecular Dynamics Simulations of Gas Flow in Nanopores for Shale Gas Development

12:00-13:00 Lunch



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Low-Salinity EOR and Nanotechnologies (1C)

Chairperson: Hideharu Yonebayashi and Edo S. Boek

13:00-13:40 Zahra Aghaeifar, Skule Strand, Tor Austad, and Tina Puntervold, University of Stavanger, Norway

The Influence of Formation Water Salinity on the Low Salinity EOR-Effect in Sandstone at High Temperature (Keynote)

13:40-14:20 Martin P. Andersson, Tue Hassenkam, and Susan L. S. Stipp, Copenhagen University, Denmark

Experimental and Theoretical Nanoscale Investigations of Low Salinity Enhanced Oil Recovery (Keynote)

14:20-14:50 Kei Kobayashi and Hirofumi Yamada, Department of Electronic Science & Engineering, Kyoto University, Japan

Molecular-Scale Visualization of Hydration Structures at Solid-liquid Interfaces by Frequency Modulation Atomic Force Microscopy (Keynote)

14:50-15:20 Ken-ichi Amano, Department of Energy and Hydrocarbon Chemistry, Kyoto University, Japan

Extraction of Solvation Structure from a Force Curve Obtained by Atomic Force Microscopy: Introduction of a Simple Theory for the Extraction (Invited)

15:20-15:40 Kazuya Kobayashi, Yunfeng Liang, Ken-ichi Amano, Sumihiko Murata, Toshifumi Matsuoka, Naoya Nishi, and Tetsuo Sakka, Kyoto University; Satoru Takahashi, JOGMEC, Japan

Theoretical Study of Atomic Force Microscopy on Muscovite: Hydration Structure and Measured Force

15:40-16:10 Coffee Break



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Nano Polymer EOR: Porous and Fractured Reservoirs (1D)

Chairperson: Satoru Takahashi and Kyosuke Onishi

16:10-16:40 Mingyuan Li, DIALOG, Malaysia and China University of Petroleum, Beijing, China

EOR Technologies with Linked Polymer Solution and Nano-Polymer Particle (Keynote)

16:40-17:10 Bo Peng, China University of Petroleum, Beijing, China

Nano Polymer Solution in Enhanced Oil Recovery (Keynote)

17:10-17:30 Kazuya Kusanagi, Sumihiko Murata, Toshifumi Matsuoka, and Yunfeng Liang, Kyoto University; Yosuke Goi, Mineo Sabi, Kazuhito Zinno, Dai-ichi Kogyo Seiyaku Co. Ltd.; Yoshitake Kato and Norihiko Togashi, JOGMEC, Japan

Application of Cellulose Nanofiber as Environment Friendly Polymer for Enhanced Oil Recovery

17:30-17:50 Ryosei Ojima and Sumihiko Murata, Kyoto University, Japan

Pressure Dependent Sweep Behavior of Oil in Single Fracture

18:00 Dinner at Ganko Kyoto Eki-biru (<http://www.gankofood.co.jp/en/>)



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Saturday, 5 September, 2015

New Materials for Completions and Surface Facilities (2A)

Chairperson: Sunao Takagi

9:30-10:05 Masaei Ito, Schlumberger K. K., Japan

CNT Reinforced Elastomer for HPHT Sealing System for Har Environments (**Keynote**)

10:05-10:40 Manuel P. Marya, Schlumberger Rosharon Campus, USA

Nanomaterial Solution for Asset Structural Integrity and Increased Longevity (**Invited**)

10:40-10:50 Coffee break

Bio-conversion of Carbon Dioxide (2B)

Chairperson: Toshifumi Matsuoka

**10:50-11:20 Fumio Inagaki and IODP Expedition 337 Scientists, JAMSTEC, Japan;
Kai-Uwe Hinrichs, University of Bremen, Germany**

Exploring the Extent and Limits of the Deep Biosphere Associated with Coal-Bearing Hydrocarbon System Down to ~ 2.5 km below the Seafloor off Shimokita, Japan (**Keynote**)

11:20-11:40 Shun-ichi Ishii, JAMSTEC, Japan and Dept. Microbial & Environmental Genomics, J. Craig Venter Institute, USA

Acceleration of Microbial Electrocatalysis for Energy Recovery (**Invited**)

11:40-12:00 Haruo Maeda and Masayuki Ikarashi, INPEX Corporation; Naoya Fukushima, Hajime Kobayashi and Kozo Sato, The University of Tokyo, Japan

Possibility of Bioelectrochemical Conversion of Carbon Dioxide into Methane in Depleted Oil Fields (**Invited**)



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12:00-13:20 Lunch Break and Group Photos

CCS and Methane Hydrate (2C)

Chairperson: Bo Peng and Yasuhiro Fukunaka

13:20-13:50 Antonius Indarto and C. B. Rasrendra, Institut Teknologi Bandung, Indonesia

Impurities Removal Process for Indonesia Natural Gas and Carbon Capture and Storage (Invited)

13:50-14:20 Takeshi Tsuji, Kyushu University, Japan

Digital Rock Physics for Identification of Suitable Reservoir Conditions in CO₂ Storage (Invited)

14:20-14:50 Satoshi Takeya, AIST, Japan

Visualization of Gas Hydrates Coexisting with Water or Ice by Phase-contrast X-ray CT (Invited)

14:50-15:10 Jihui Jia, Yunfeng Liang, Sumihiko Murata, and Toshifumi Matsuoka, Kyoto University; and Takeshi Tsuji, Kyushu University, Japan

Mechanical Properties of Methane Hydrate, CO₂ Hydrate, and Ice for Gas Hydrate Exploration and Development

15:10-15:40 Coffee Break



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Asphaltene Nano Science in Oil Field (2D)

Chairperson: Mingyuan Li and Masanori Nakano

15:40-16:20 Edo S. Boek, Imperial College London and the MathWorks, UK

Digital Rock Physics and Asphaltene Simulations using Advanced Parallel Computing Techniques
(Keynote)

16:20-16:40 Masato Morimoto and Toshimasa Takanohashi, AIST; Hiroshi Imamura and Takeshi Morita, Chiba University; Hideki Yamamoto, Kansai University; Ryuzo Tanaka, JPEC, Japan

Asphaltene Nano-aggregation Behavior in Organic Solvents Determined by Small-Angle X-Ray Scattering (Invited)

16:40-17:00 Hideharu Yonebayashi and Daisuke Urasaki, INPEX Corporation, Japan

Case Studies of Asphaltene Precipitation Risk Evaluation for Gas Injection (Invited)

17:00-17:20 Shumpei Sugiyama, Yunfeng Liang, Sumihiko Murata, and Toshifumi Matsuoka, Kyoto University; and Masato Morimoto, AIST; Masanori Nakano, JAPEX, Japan. Edo S. Boek, Imperial College London and the MathWorks, UK

Static and Dynamic Properties of a Full Molecular Model of Crude Oil

17:20-17:40 Ryutaro Hibi, Yunfeng Liang, Sumihiko Murata, and Toshifumi Matsuoka, Kyoto University; Masato Morimoto, AIST; Takaaki Uetani, Aki Nakajima, and Takeshi Hirayama, INPEX Corporation, Japan. Edo S. Boek, Imperial College London and the MathWorks, UK

Application of Digital Oil for Investigations of Asphaltene Inhibitors

17:40- Closing Remarks

Toshifumi Matsuoka (Kyoto University)